Dec. 17, 1946. G. W. BEADLE ET AL 2,412,861

CATAMENIAL DEVICE

Filed Oct. 12, 1944

FIG. 1.

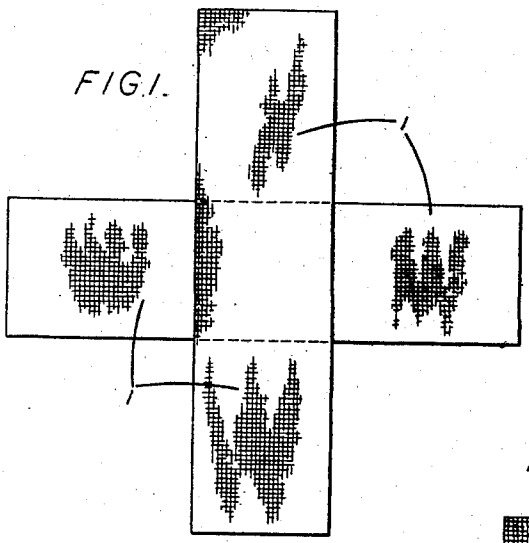


FIG. 2.

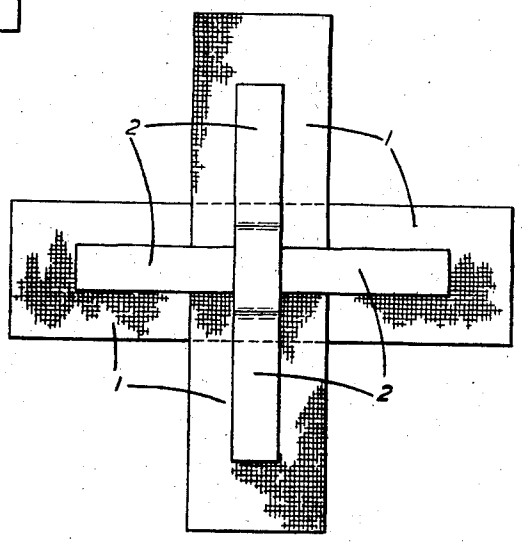


FIG. 4.



FIG. 3.

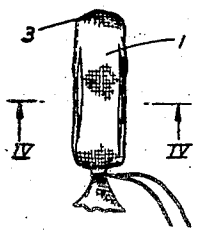
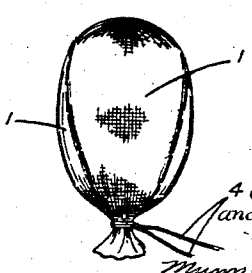


FIG. 5.



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2,412,861

CATAMENIAL DEVICE

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2 Claims. (Cl. 128—285)

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Catamenial tampons have been increasingly used in recent years, usually made of compacted absorbent material such for example as cotton wool. In the case of e. g. cotton wool, the material is usually supplied in the form of a web from which a strip of the desired size is cut and (sometimes after being rolled or folded) compressed into tampon form. A suitable withdrawal thread, cord or tape (hereinafter called a cord) is usually attached prior to compression.

A satisfactory tampon must be easily applied and capable of being withdrawn complete without likelihood of sloughing fibres or tearing apart. The original surfaces of the absorbent web are smooth and generally less liable to slough or tear than its cut edges: and if necessary the web can, in the tampons of this invention, be laid on so as to be enclosed or covered by a layer of material such for example as muslin or surgical gauze. One feature of the present invention is that such an original or protected surface forms the surface of the front or insertion end. Preferably this end is curved somewhat, so that in effect an insertion dome is formed covered by the absorbent web which is covered on the ends and sides by the protecting gauze. The last mentioned strips are crossed concentrically upon each other and their extremities form limbs, extending from the insertion end longitudinally, along the sides of the body of the tampon and are compacted together into cylindrical form and secured firmly to one another and to the withdrawal cord near the withdrawal end by tying, looping or stitching. In the simplest form the withdrawal cord can be looped round the limbs and firmly tied.

It is considered desirable to arrange that the cylindrical surface of the tampon shall also for the most part be constituted by the original or protected surface of the web and that expansion of the tampon as it becomes moist shall also take place more or less radially, as well as longitudinally, so that it tends to assume a somewhat elongated bulbous form, with the neck of the bulb at the withdrawal end. It thus conforms in use with the natural anatomical shape. The cut surfaces of the absorption web generally bind together during compression rather more satisfactorily than the original surfaces, and it is thus found that a cross- or star-shaped blank with three or more limbs gives good results when compressed and tied: the material of the blank can if desired include a layer of gauze or the like which will form the exterior surface of the finished tampon. Possibly the simplest and most

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satisfactory method from the manufacturing point of view is to use a rather narrow strip of absorbent material (perhaps nearly square in cross-section) of suitable length with a second similar but possibly slightly shorter strip placed perpendicularly across it; there is thus a double thickness of absorbent material at the insertion end and four limbs bent back from the intersection of said strips which have their cut edges adjacent, so that the whole binds satisfactorily together when compacted by compression. Each such strip may have a corresponding gauze or like strip to enclose its limbs and form an outer layer if desired. The withdrawal cord can then be looped round the limbs of the gauze strips and tied near the withdrawal end or the limbs otherwise secured together and to the cord. Experiments appear to show that the risk of breakage or sloughing of the fibres of the absorbent material in a tampon thus formed is negligible when the absorbent webs are cut from suitable cotton wool but the use of the gauze or like external layer or reinforcement of the web is preferred, as it forms an excellent surface enclosure for the fibrous material and can be sufficiently wide substantially to ensure enclosure even after the tampon has become moist: it also facilitates a strong and reliable attachment of the cord and easy withdrawal.

The invention in its preferred form thus embodies several important parts, the parts for which a monopoly is desired being delimited by the claims.

The preferred form is illustrated by the accompanying drawing in which:

Fig. 1 shows muslin or surgical gauze strips arranged to receive absorbent strips to form a blank ready for folding and compression.

Fig. 2 shows the absorbent material (assumed hereinafter to be strips cut from a web of cotton wool) in position to complete the blank,

Fig. 3 shows the finished tampon after the limbs of the blank have been folded together, compression effected and the withdrawal cord attached,

Fig. 4 is a cross-section on the line IV, IV of Fig. 3, and

Fig. 5 shows the approximate form of the tampon after it has been moistened.

As will be clear from the drawing, two strips 1, 1 of gauze (used hereinafter to include surgical gauze or muslin or other suitable textile material) form a protecting and enclosing surface, upon which are laid (Fig. 2) two narrower strips 2, 2 of cotton wool. The four limbs of the cross

thus formed are folded together with the cotton wool inside and compacted into cylindrical form as shown at Figs. 3 and 4, with the centre of the blank forming the domed insertion end at **3**. The withdrawal cord **4** can then be firmly attached by looping and tying it round the four ends of the gauze strips with the whole of the cotton wool enclosed within the gauze.

The approximate bulb-like form which the moistened tampon tends to assume is shown at Fig. 5. It will be clear without illustration that the cord and the ends of the limbs could be stitched or otherwise suitably secured together if desired and that the material could be cut in one piece instead of using crossed strips to form the blank with its limbs.

We claim:

1. The method of making catamenial tampons consisting in crossing strips of gauze, laying

thereon smaller strips of absorbent material, folding all of said strips together about their concentric point to form the insertion end of the tampon and enclose the absorbent material within the gauze strips and subsequently uniting the ends of the gauze strips together beyond the ends of the absorbent material.

2. A catamenial tampon composed of outer crossed strips of gauze the ends thereof forming limbs and inner crossed strips of absorbent material superposed concentrically thereon, the assembled strips being compressed to form the entrance end of the tampon at the concentric point of the several strips with the limbs of the gauze strips enclosing the absorbent material and a withdrawal cord attached to the ends of the gauze strips.

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